What is claimed is:

Rule 1.126 1. A flexible abrasive sheet disk article comprising:

a) a backing sheet comprising a polymer;

b) the backing sheet having a disk shape, the disk shape having an outer radius;

c) the disk shape having an annular distribution of abrasive on a surface, the annular distribution having an inner radius of an abrasive coated annular band that is less than 85% of an outer radius of the abrasive coated annular band;

d) the annular distribution of abrasive comprising at least a monolayer of abrasive particles or composite erodible abrasive agglomerates, the at least a monolayer being resin bonded onto the surface of the disk backing sheet; and

e) an outer annular border gap area located between the outer radius of the coated abrasive annular band of coated abrasive and an outer radius of the disk article, the gap area being free of coated abrasive wherein the border gap area has a radial width of from 0.1% to 10.0% of the abrasive disk article radius.

~~3~~ 2. A process of making spherical beads comprising:

e) using a cell sheet wherein the cell sheet has a array of cell sheet through holes;

f) the cell sheet through holes each have a cross sectional area;

g) the cell sheet having a nominal thickness;

h) the cell sheet holes form cell sheet volumes wherein a cell sheet volume is equal to the cell sheet through hole cross sectional area multiplied by the cell sheet thickness;

e) mixing materials into a solution, the mixture solution comprising an oxide, or a combination of oxides, and water or solvents or a combination thereof;

i) filling the cell sheet holes with the mixture solution to form mixture volumes wherein the volume of mixture solution contained in each mixture volume is equal to the cell sheet volume;

j) ejecting the mixture volumes from the cell sheet by subjecting the mixture solution contained in each cell to an impinging jet of fluid wherein the impact of the impinging jet of fluid dislocates the mixture volumes from the cell sheet thereby forming

independent mixture solution lump entities;

k) wherein the ejected independent mixture solution lump entities are shaped into independent spherical entities by mixture solution surface tension forces or other forces acting on the lump entities;

i) the independent spherical entities are introduced into and subjected to a solidification environment wherein the independent spherical entities become solidified to form loose green beads;

j) firing the green beads at high temperatures to produce beads.

3. The process of claim 2 wherein the solidification environment comprises elevated temperature air or other gas.

4. The process of claim 2 wherein the solidification environment is a dehydrating liquid.

5. The process of claim 2 wherein the cell sheet is a woven screen.

6. The process of claim 2 wherein the cell sheet is joined at two opposing ends to form a cell sheet continuous belt.

7. The process of claim 2 wherein the cell sheet comprises a disk shape having an annular pattern of cell sheet holes.

8. The process of claim 2 wherein the green beads are fired at a temperature sufficiently high to vitrify the bead exterior surfaces, wherein the vitrified bead surfaces are glassy surfaces.

9. The process of claim 2 wherein the mixture solution comprises chemical agents thereby providing spherical shaped hollow beads.

10. The process of claim 9 wherein the spherical shaped hollow beads are fired at a temperature sufficiently high to vitrify the agglomerate exterior surfaces, wherein the vitrified bead surfaces are glassy surfaces.

11. A process of making spherical abrasive agglomerates comprising:

a) using a cell sheet wherein the cell sheet has a array of cell sheet through holes;

b) the cell sheet through holes each have a cross sectional area;

c) the cell sheet having a nominal thickness;

d) the cell sheet holes form cell sheet volumes wherein a cell sheet volume is equal to the cell sheet through hole cross sectional area multiplied by the cell sheet thickness;

e) mixing materials into a solution, the mixture solution comprising abrasive particles, an oxide, or a combination of oxides, and water or solvents or a combination thereof;

h) filling the cell sheet holes with the mixture solution to form mixture volumes wherein the volume of mixture solution contained in each mixture volume is equal to the cell sheet volume;

i) ejecting the mixture volumes from the cell sheet by subjecting the mixture solution contained in each cell to an impinging jet of fluid wherein the impact of the impinging jet of fluid dislocates the mixture volumes from the cell sheet thereby forming independent mixture solution lump entities;

h) wherein the ejected independent mixture solution lump entities are shaped into independent spherical entities by mixture solution surface tension forces or other forces acting on the lump entities;

i) the independent spherical entities are introduced into and subjected to a solidification environment wherein the independent spherical entities become solidified to form loose green agglomerates;

j) firing the green agglomerates at high temperatures to produce spherical abrasive agglomerates.

12. The process of claim 11 wherein the solidification environment comprises elevated temperature air or other gas.

13. The process of claim 11 wherein the solidification environment is a dehydrating liquid.

14. The process of claim 11 wherein the cell sheet is a open cell woven screen.

15. The process of claim 11 wherein the cell sheet is joined at two opposing ends to form a cell sheet continuous belt.

16. The process of claim 11 wherein the cell sheet comprises a disk shape having an annular pattern of cell sheet holes.

17. The process of claim 11 wherein the green agglomerates are fired at a temperature sufficiently high to vitrify the agglomerate exterior surfaces, wherein the vitrified agglomerate surfaces are glassy surfaces.

18. The process of claim 11 wherein the mixture solution material includes at least one metal oxide or non-metal oxide selected from the group consisting of silica, alumina, titania, zirconia, zirconia-silica, magnesia, alumina-silica, alumina-boria-silica, alumina and boria, boria and mixtures thereof.

19. The process of claim 11 wherein the spherical abrasive agglomerates comprise diamond or cubic boron nitride particles bound in an erodible matrix material.

20. The process of claim 11 wherein the spherical abrasive agglomerates having number average abrasive particle diameter sizes less than 10 micrometers are encapsulated together with oxide materials to form erodible composite agglomerates having spherical abrasive agglomerate number average diameter sizes of 60 micrometers or less.

21. The process of claim 11 wherein the abrasive agglomerates comprise coloring agents, wherein the coloring agents are used to identify the size of the abrasive particles contained

in a abrasive agglomerate wherein a specific color correlates to specific contained particle size.

22. A flexible abrasive sheet article comprising a flexible backing sheet having a flat surface area coated with at least a monolayer of the abrasive agglomerates of claim 11 supported in a polymeric resin.

23. The article of claim 22 wherein the abrasive sheet article is a lapping film.

24. The process of claim 23 wherein the workpiece is an optical device.

25. The process of claim 24 wherein the optical device is a fiber optic component.

26. A process of surface-conditioning the abrasive articles of claim 22 wherein the surfaces of abrasive agglomerates attached to the flexible backing sheet having an initial average height of abrasive agglomerates, the process comprising providing relative motion between the abrasive article abrasive surface and a surface conditioning apparatus, the surface conditioning apparatus having a flat contact surface, wherein the surface conditioning apparatus flat contact surface is in pressure contact with the article abrasive surface and wherein the surface conditioning apparatus flat contact surface dynamically contacts and breaks away individual coated abrasive agglomerates that are resin bonded in a position elevated above the initial average height of the abrasive agglomerates from the surface of the abrasive article, thereby providing approximately a monolayer of abrasive agglomerates resin bonded to the abrasive article.

27. The process of claim 24 wherein the surface condition apparatus flat contact surface comprises an abrasive surface.

28. A flexible abrasive sheet article comprising a flexible backing sheet having an array of spaced, shaped, raised abrasive coated island foundation structures, the abrasive coated island foundation structures comprising islands of a first structure material having a raised

top surface, the raised island top surface having at least a monolayer of the abrasive agglomerates of claim 11 supported in a polymeric resin.

29. A process of surface-conditioning the abrasive articles of claim 28 wherein the surfaces of abrasive agglomerates supported by resin on the island structures having an initial average height of abrasive agglomerates, the process comprising providing relative motion between the abrasive article abrasive surface and a surface conditioning apparatus, the surface conditioning apparatus having a flat contact surface, wherein the surface conditioning apparatus flat contact surface is in pressure contact with the article island abrasive surfaces and wherein the surface conditioning apparatus flat contact surface dynamically contacts and breaks away individual coated abrasive agglomerates that are resin bonded in a position elevated above the initial average height of the abrasive agglomerates from the surface of the abrasive article, thereby providing approximately a monolayer of abrasive agglomerates resin bonded to the article raised islands.

30. An abrasive article wherein the standard deviation of the average size of the spherical abrasive agglomerates is less than 20% of the average abrasive agglomerate size.

31. An abrasive article wherein the standard deviation of the average size of the spherical abrasive agglomerates is less than 10% of the average abrasive agglomerate size.